DOCUMENT RESUME

ED 275 449 PS 016 163

AUTHOR Nakano, Shigeru; And Others
TITLE Individual Differences in Responses to Unfamiliar Objects at Twenty-Three Months of Age.
PUB DATE 85
NOTE 14p.; In: Research and Clinical Center for Child Development Annual Report, 1984-1985; see PS 016 157.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Affective Behavior; *Attachment Behavior; Foreign Countries; *Individual Differences; *Infants; Longitudinal Studies; *Novelty (Stimulus Dimension); *Personality
IDENTIFIERS *Japan

ABSTRACT

Examining relationships in the data from assessments conducted when Japanese infants were 7.5, 12, 23, and 27 months of age, this study provides evidence of an interaction between early attachment and temperamental dispositions. Specifically examined were 7.5-month-olds' stranger and separation distress and general fearfulness; 12-month-olds' attachment; 23-month-olds' inhibited reactions to an unfamiliar adult, an unfamiliar peer, and a novel robot; and mothers' assessments of 27-month-olds' temperamental qualities and competence. Participants were 40 subjects drawn from 2 cohorts. Findings demonstrated that, when applied to the data, Ainsworth's attachment classification scheme was limited. Findings also showed that the pattern of attachment classification partially overlapped that of children's response in the unfamiliar object situation. Type-B children tended to approach the unfamiliar objects more frequently across the three situations than did Type-C children. Children's behavior at 23 months was predicted by the index of "fearfulness" obtained at 7.5 months and by attachment types obtained at 12 months. Individual differences within Type-B children were found. (RH)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED275449

INDIVIDUAL DIFFERENCES IN RESPONSES TO UNFAMILIAR OBJECTS AT TWENTY-THREE MONTHS OF AGE

SHIGERU NAKANO
Fuji Woman's Junior College
HIROSHI USUI
Hokkaido University of Education
KAZUO MIYAKE
Hokkaido University

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☐ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy

The relationship between the response of 40 infants at 7.5 months toward a stranger, their classifications in the Ainsworth Strange Situation at 12 months, their response, at 23 months, to three unfamiliar objects (a peer, a stranger and a robot) and, their tendency toward behavioral inhibition, assessed at 27 months, was examined. Results show that Type-B children tended to approach the unfamiliar objects more frequently across three situations than Type-C children. However, the response was also related to the results of behavioral inhibition obtained at 7.5 and 27 months. Furthermore, there were individual differences within B type children in terms of Ainsworth's sub-classifications. The interactional effect between the behavior types in the Strange Situation and temperamental behavior characterristics on approach behaviors was discussed.

Key words : attachment classification, temperament, unfamiliar object situation, individual difference

PS 016163

Two main paradigms concerning developmental continuity of socioemotional behavior in infancy and childhood can be identified. One is based on Ainsworth's Strange Situation assessment, the other is based on temperamental behavior characteristics in a child.

Researchers who support the former paradigm insist that quality of attachment in early development influences adaptive behaviors in many domains of later development. They have demonstrated the differential effects of attachment qualities, A, B and C, at 12 to 18 months of age, on cooperation and compliance with their mothers and an unfamiliar adult (Londerville & Main, 1981) and frequency of symbolic play bouts (Main, 1983) at 21 months of age, problem-solving style at 24 months of age (Matas, Arend & Sroufe, 1978), competence in peer interaction at 42 months of age (Waters, Wippman and Sroufe 1979),

This research was supported by a grant in aid for scientific research (58450012) from the Ministry of Education, Science and Culture (Principal investigator : Kazuo Miyake) and by a giant from the Ministry of Welfare (Principal investingator ; Noboru Kobayashi). The authors would like to thank Sing-jen Chen for his invaluable comments on an earlier draft of this article, Donna L. Bradshaw, Yuko Kanaya and Tatsuo Ujiie for scoring the Strange Situation variables. We also thank Nobumoto Tajima, Kimiharu Satoh, Etsuko Ishikawa, Aoi Tamura, Mayumi Matsumoto and Chiaki Nakamura for data collection and analysis. Reprint requests should be sent to Shigeru Nakano, Fuji Woman's Junior College, Kita-ku, Kita 16, Nishi 2, Sapporo, 001, Japan.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Kazuo Miyake
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

BEST COPY AVAILABLE

dependency on their teachers at age 4 years (Sroufe, Fox, Pancake, 1983) and ego-resiliency and ego-control at age 4-5 years (Arend, Gove, & Sroufe, 1979). These studies argued that children who had been securely attached to their mothers (B type) behaved in a significantly positive manner and their behavior were more adaptive than that of both types of nonsecurely attached children ; A and C.

The above long term effects of early attachment qualities have been accounted for based on the assumption that the attachment relationship between an infant and its mother who is responsive and sensitive to her child's intentional cues in infancy provides a secure base for exploration of the environment, and that such an effective (secure) relationship supports and promotes object-mastery and a developed a sense of effectance in the child (Srofe & Waters 1977 ; Arend, Gove, & Sroufe 1979). "Thus, continuity in quality of adaptation is seen as resulting from the child's functioning with respect to developmentally salient issues and its subsequent effects on later adaptation *in conjunction with* environmental support" (Arend, Gove, & Sroufe 1979, p. 957). Further, this continuous effect was considered as not *specific* competences or skills but *underlying* competence, i. e., quality of adaptation or *style*. For example, Waters, Wippman, & Sroufe (1979) noted that "it was expected that quality of attachment in infancy (reather than an index of early peer interaction skills) would predict competence and effectance in the peer group" (p. 828).

However, they did not assess the mother-infant (child) relationship at the same time as measurement of attachment quality in Ainsworth's Strange Situation. Matas et al. (1978) also noted that "although the strange-situation classifications were based on the child's behavior (*mother's behavior not entering* into the classifications at all), they also were *presumed* to reflect maternal sensitivity to infant signals during the first year" (p. 555 italics added). Moreover, Grossmann, Grossmann, Spangler, Suess and Unzner (1985) showed that maternal sensitivity did not clearly relate to individual differences between children in the Strange Situation, and was not stable for the later half of the first year. As a result, it leaves room for interpretaion of individual differrences in the strange situation as reflecting the child's own disposition to such a novel circumstance, rather than the history of the mother's sensitivity.

Secodly, with respect to temperament, Lee and Bates (1985) showed a link between early infant temperament and later problem behavior via mother ratings on a questionnaire at ages 6, 13, 24 months and home observation of mother's control attempts to the toddler's trouble behavior at age 24 months. Miyake, Chen, Campos (1985) suggested that the child's own endogenous threshold for distress might play an important role in determining the infants behavior in the Strange Situation.

Campos, Barrett, Lamb, Goldsmith, & Stenberg (1983) also pointed out that "there seems to be evidence that C babies may be difficult babies from earliest infancy and that certain aspects of their Strange Situation performance (e. g., their threshold to cry and their passivity) may be evident long before the attachment relationship is built" (p. 868). According to the above suggestion, the attachment types classified in the Strange Situation are hypothesized to overlap with temperamental behavior characteristics. But, although Usui & Miyake (1985) adminstered two kinds of questionnaires, Infant Temperamental Scale and Early Childhood Personality Inventory, at 8, 16, 27 and 40 months of age and found a longitudinal consistency in the temperamental dispositions such as difficulty of

soothing, and behavioral inhibition, their results showed few relationships between the temperamental features and the attachment types. Matas et al. (1978) also found that a temperament factor they derived did not distinguish between attachment groups.

As Sroufe insisted that the issue of individual differences in behavioral manifestions influenced by temperamental dispositions is at a different level of analysis from attachment classification, and that temperamental differences do not directly influence the result of infant behavior in the Strange Situation (Sroufe, 1985, p. 3), do the children's behavior types in the Strange Situation interact with the temperamental behavior features? In the present study, we demonstrate the interaction between the early attachment relationship and temperamental dispositions.

METHOD

Subjects

Forty subjects drawn from two cohorts served as subjects (21 boys, 19 girls) (see Usui & Miyake (1985) for details on the background of the subjects).

Procedures

Subjects had been assessed several times either in their home, at our laboratory or both from birth to 40 months of age. This study examined relationships of the data from 7.5 months, 12 months, 23 months and 27 months assessments.

Assessments at 7.5 months. Subjects were tested for stranger and separation distress in the laboratory of our research center. The procedure was similar to the Ainsworth Strange Situation and consisted of the following six episodes : mother-infant free play ; stranger entry ; mother departure ; stranger depature ; stranger re-entry ; re-union with mother. Except for the first episode (3 minutes), each episode lasted for 2 minutes (see Miyake & Chen (1985) for details). A global judgement of "fearfulness" was derived, computed as the presence of avoidance and negative vocalization reflecting reaction to a stranger and to separation from the mother. Through the procedure, infants were classified into either "fearful" or "not fearful".

Assessements at 12 months. Ainsworth's Strange Situation procedure was carried out on all the infants and their mothers. The procedure followed Ainsworth's standard version, but episodes, 4, 6 and 7 were cut short if distress exceeded a maximum of 2 minutes. Based on the assessment, infants were classified into one of three attachment types (but, no type A were found) following the Ainsworth rating system by three trained raters.

Assessments at 23 months. Subjects were assessed for their inhibited reactions in three unfamiliar situations which consisted of meeting an unfamiliar adult, an unfamiliar peer and a novel robot at our laboratory.

a. *Stranger Situation :* When a subject toddler played freely at presence of the mother, an unfamiliar woman entered the room and after sitting silently in a chair in a corner of the room for 30 seconds, she approached the toddler showing picture cards adopted from PPVT and demanded that the toddler to give the name of the picture drawn on the card.

b. *Peer Situation* : Two toddlers and their mothers who were unfamiliar to each other entered a play room furnished with available toys and the children were given a chance to

play freely for 20 minutes.

c. *Robot Situation* : A toddler and the mother were introduced into a room where a "robot" made of tin cans, about 120 cm high, suddeny appeared, but exhibitied no movement. (See Nakano (1984) for full details of the three situations).

Spontaneous approaches or non-approaches were perfomed in each the three situations and were rated from videotapes by two independent raters without knowledge of the assessment using a two point (0 or 1) scale.

Agreement between independent raters through the 23 months assessment was 100%.

Assessment at 27 months. Mothers of subjects were asked to answer items relating to the child's personality . It contained eight sub-scales, concerning temperamental qualities and competences, including "Approach-Withdraw" tendencies (See Usui & Miyake (1985) for full details of the sub-scales). Based on maternal answers, subjects were divided into either "inhibited" children, who were characterized by a greater tendency to withdraw compared with the mean scores, or "not inhibited" children, who stand the opposite tendency.

RESULTS AND DISCUSSION

Attachment Classification

Of the forty children available for this study, 24 (17 boys, 7 girls) were classified as B type, 16 (4 boys, 12 girls) as C type (including Pseudo-C) and none as A type. (See Miyake & Chen (1985) for the whole distribution of all subjects at 12 months).

Relationship between attachment classification and cross-situational consistency in approach

1. *Inter-relationships between approach to a stranger and to a robot and attachment classification.*--There were 16 toddlers who showed a spontaneous approach to the stranger before she demanded it. They consisted of 12 B-type and 4 C-type (table 1). Comparision of the two attachment types showed that half of the Bs did approach the stranger, but three quarters of the Cs did not. However, this trend was not significant.

Reactions to the robot distinguished the attachment groups. About half (14) of the Bs went near the robot whereas only 3 of the Cs did. This difference was significant by the x^2 test ($x^2=4.64$, $p.<.05$). However, it was considered as a reflection of individual differences within B types that they did not show any clear trend, but they were divided into either approach or non approach in both situations.

Then, reactions to both situations were combined into a 2×2 contingency table as represented in table 1. Results demonstrated that none of the Cs tried to approach both unfamiliar objects and 56.2 percent of them approached neither, while 25.0 percent of B types approached both and only 16.7 percent neither. This group difference was significant by the x^2 test ($x^2=7.33$ $p.<.05$). Within C types, there was a significant tendency for subjects to approach neither objects ($x^2=6.07$, $p.<.05$). But, in contrast, B type toddlers were almost equally distributed over all cells. Moreover, about half of the Cs (7/16) just as in Bs (14/24) showed approached either the stranger or the robot. In summary, results suggested that attachment type C toddlers showed less tendency to approach both unfamiliar objects than B type, while B types did or did not approach them reflecting individual differences based on underlying factors other than the attachment classification.

TABLE 1

Inter-Relationships between Strange Situation Classification, Rsponse to a Stranger and to a Robot.

Strange Situation Classification			Approach to Robot: Yes B	Approach to Robot: Yes C	Approach to Robot: No B	Approach to Robot: No C	Total Responses to Stranger B	Total Responses to Stranger C
Approach to Stranger	Yes	B	25.0% (6)		25.0% (6)		50.0% (12)	
		C		0.0% (0)		25.0% (4)		25.0% (4)
	No	B	33.3% (8)		16.7% (4)		50.0% (12)	
		C		18.8% (3)		56.2% (9)		75.0% (12)
Total Responses to Robot		B	58.3% (14)		41.7% (10)		100.0% (24)	
		C		18.8% (3)		81.2% (13)		100.0% (16)

TABLE 2

Inter-Relationships between Strange Situation Classification, Response to a Peer and to a Robot.

Strange Situation Classification			Approach to Robot: Yes B	Approach to Robot: Yes C	Approach to Robot: No B	Approach to Robot: No C	Total Responses to Peer B	Total Responses to Peer C
Approach to Peer	Yes	B	41.7% (10)		8.3% (2)		50.0% (12)	
		C		0.0% (0)		31.2% (5)		31.2% (5)
	No	B	16.7% (4)		33.3% (8)		50.0% (12)	
		C		18.8% (3)		50.0% (8)		68.8% (11)
Total Responses to Robot		B	58.4% (14)		41.6% (10)		100.0% (24)	
		C		18.8% (3)		81.2% (13)		100.0% (16)

2. *Inter-relationships between approach to a peer and to a robot and attachment classification.*--The proportion of toddlers who showed spontaneous approach behavior to the peer play mate during the first 5 minutes was just 50 percent in B types and 31.2 in C-types. Though this result seemed to suggest that the attachment type B toddlers could show more of an approach to their playmate than C-types, the trend was not significant.

Reactions to an unfamiliar peer were combined with reactions to the robot and compared in a 2×2 contingency table as represented in table 2. The clearest result was that nearly half of the Bs showed approach to both the peer and the robot whereas none of the Cs did. This tendency was significant ($x^2=6.67$ $p.<.01$) and was congruent with Waters et al. (1979), who demonstrated peer competence was better in the securely attached group. It was not found, however, that there was a difference between attachment groups in the proportion of the toddlers who approached neither the peer not the robot. Another significant tendency was found with the distribution over cells in the contingency table within B-type ($x^2=4.29$ $p.<.05$). Thus, as presented in table 2, attachment type B toddlers demonstrated a strong linkage of approach behavior between a peer and a novel object and were nearly divided into two groups, approach both or approach neither. Within C-type toddlers, such a trend was not significant.

3. *Inter-relationships between approach to a peer and to a stranger and attachment classification.*--Table 3 presents the combined results between reactions to a peer and the robot, related to the attachment groups. It indicates that over half the toddlers (10/16) in the C-type group showed approach to neither a peer nor the robot whereas B-type toddlers were divided into just four sub-categories.

Thus, it is suggested from the results that the two attachment groups may be controlled by different kind (s) of factor (s). Temperamental disposition may one such factor. The relationship between approach trends in the above two situations and classification as temperamental disposition based on a maternal questionnaire (ECPI) at 27 months of age was examined (table 4). All toddlers who approached neither a peer nor a stranger were classified as *inhibited* and almost all the children who approached both were *not inhibited* ; not only within the B-type group but also between the two attachment groups. Therefore, the behavioral tendency to approach or not to approach both a peer and a stranger at 23 months of age remained stable until 27 months because the ECPI also measured Approach-withdrawal in an interpersonal situation.

4. *Inter-relationships between approach to a stranger, response to testing demand and attachment classification.*--Reactions of each toddler to a stranger were compared with smooth responses to stranger's demand for answering the test. B-type children were compliant with the demand whether or not they approached her. Table 5 shows the results of this analysis. This trend was significant ($x^2=4.29$, $p.<.05$). In contrast, almost half (5/12) of C type toddlers who did not approach a stranger made some response to her in the situation though it was not significant.

As a result, almost the same proportion of children of both attachment groups were compliant with her after period of time. Thus, it is suggested from the results that some of C-type toddlers can approach a stranger, though passive, but the other Cs and the Bs who did not approach showed more resistance to answer the stranger. Results were compared with behavioral inhibition reported from ECPI at 27 months of age. As presented in table

TABLE 3

Inter-Relationships between Strange Situation Classification, Reacton to an Unfamiliar Peer and to Stranger.

Strange Situation Classification			Approach to Stranger Yes B	Approach to Stranger Yes C	Approach to Stranger No B	Approach to Stranger No C	Total Responses to Peer B	Total Responses to Peer C
Approach to Peer	Yes	B	25.0% (6)		25.0% (6)		50.0% (12)	
		C		18.8% (3)		12.5% (2)		31.3% (5)
	No	B	25.0% (6)		25.0% (6)		50.0% (12)	
		C		6.2% (1)		62.5% (10)		68.7% (11)
Total Responses to Stranger		B	50.0% (12)		50.0% (12)		100.0% (24)	
		C		25.0% (4)		75.0% (12)		100.0% (16)

TABLE 4

Inter-Relationship between Behavior Inhibition, Approach to an Unfamiliar Peer and to a Stranger.

(a) Attachment Type B

ECPI at 27months			Approach to Stranger Yes Inhb	Yes Non	No Inhb	No Non	Total Inhb	Total Non
Approach to Peer	Yes	Inhb	0		1		1	
		Non		5		1		6
	No	Inhb	1		4		5	
		Non		4		0		4
Total		Inhb	1		5		6	
		Non		9		1		16

(b) All Subjects

ECPI at 27months			Approach to Stranger Yes Inhb	Yes Non	No Inhb	No Non	Total Inhb	Total Non
Approach to Peer	Yes	Inhb	1		1		2	
		Non		7		2		9
	No	Inhb	1		12		13	
		Non		5		0		5
Total		Inhb	2		13		15	
		Non		12		2		14

TABLE 5

Inter-Relationships between Strange Situation Classification, Approach to a Stranger and Compliance to Demand for Test.

Strange Situation Classification			Approach to Stranger: Yes B	Approach to Stranger: Yes C	Approach to Stranger: No B	Approach to Stranger: No C	Total Compliance B	Total Compliance C
Compliance to Stranger's Demand	Yes	B	41.7% (10)		16.7% (4)		58.4% (14)	
		C		18.8% (3)		31.2% (5)		50.0% (8)
	No	B	8.3% (2)		33.3% (8)		41.6% (10)	
		C		6.2% (1)		43.8% (7)		50.0% (8)
Total Responses to Stranger		B	50.0% (12)		50.0% (12)		100.0% (24)	
		C		25.0% (4)		75.0% (12)		100.0% (16)

TABLE 6

Inter-Relationships between Behavior Inhibition, and Comliance to Stranger's Demand.

	Compliance to Stranger's Demand: Yes	No	Total
Inhibited	3:2	3:7	6:9
Non	8:3	2:1	10:4
Total	11:5	5:8	16:13

(In Order B:C)

6 inhibited children were less compliant with the stranger's demand than non inhibited children ($x^2=4.30$, $p.<.05$). Therefore, compliant responses assessed in this situation are accounted for behaivioral inhibition measured by ECPI as same as consequence of attachment types assessed in the Strange Situation.

5. *Consistency of approach to an unfamiliar object across three situations.*--Individual differences in the number of situations in which approach to an unfamiliar object was shown were examined in relation to to attachment classification. Results are presented in figure 1. Most of attachment type C toddlers tried to approach in none or only one

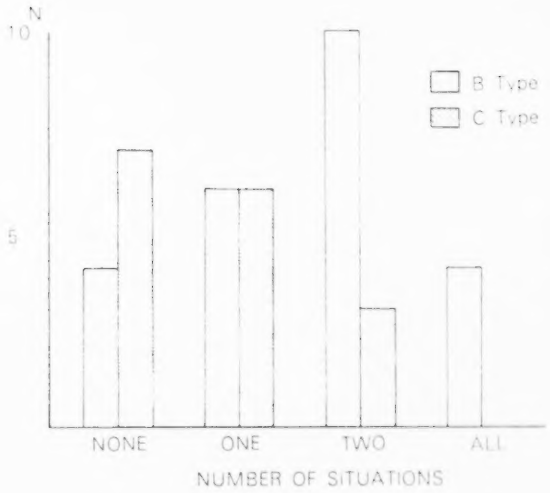

FIGURE 1. Consistency of Approach to Unfamiliar Objects through the Three Situations

situaton while B-types did to do in two or all. This trend was nearly significant ($x^2=7.28$, df $=3$, $.05<p.<.10$). When none and one, versus, two and all approaches are combined, the phi correlation was significant ($\phi=.34$, $p<.05$).

Thus, it is suggested that though child's behaviors assessed in the Strange Situation at 12 months were different from the assessment done in unfamiliar situations at 23 months, the former is predictive of the latter. This predictability of the cross-behavioral, cross-situatonal and cross-age of attachment is congruent with the studies favorable to attachment performed by Matas et al. (1978), Arend et al. (1979), Waters et al. (1979), Londerville & Main (1981), and so on. They, reported in generally B-type (secure) toddlers are more sociable and adaptive functioning, i. e. competent than non-B (anxious) toddlers.

However, one should note that the difference between B- and C-types only applied to those children who made at least 2 attempts in approching the unfamiliar objects (fig. 1). Moreover, the difference between B- and C-type children was significant, when the combined categories of number of "approach two or more" v.s. "approach one or none" were compared ($x^2=6.25$, $p<.05$). Thus, it was concluded that only the behavior of C type babies in the unfamiliar object situation can be predict by the attachment classification.

We then compared the results from unfamiliar object situation with the results obtained using the ECPI at 27 months. The resuts are presented in table 7. They indicate that the number of approaches of both B- and C-types is linked with the inhibition /not-inhibition classification. By dividing the babies into those who approached unfamiliar objects at most once and those who approached at least twice, the inhibition /non inhibition classification was high and significant ($\phi=.05$, $p.<.01$). The numberns of approach attempts differed significntly between those toddlers who were judged to be inhibited and those who were judged to be not inhibited at 27 months ($x^2=14.76$, $p<.01$). Therefore, these results may be interpreted as suggesting that the incibited /not-inhibited dimension as

TABLE 7

Inter-Relationships between Attachment Type at 12 Months, Number of Approaches to the Unfamiliar Objects at 23 Months and Behavioral Inhibition at 27 Months.

	Number of Approaches to Unfamiliar Objects							
	None		One		Two		All	
	B	C	B	C	B	C	B	C
Inhibited	3	6	2	2	1	1	0	0
Non	0	0	2	2	5	2	3	0

TABLE 8

Inter-Relationships between Attachment Type at 12 Months, Approach Behavior at 23 Months and Fearful Tendency at 7.5 Months.

	Number of Approaches to Unfamiliar Objects							
	None		One		Two		All	
	B	C	B	C	B	C	B	C
Fearful	3	6	1	3	2	3	0	0
Not Fearful	1	0	5	1	4	0	3	0

a temperamental disposition postulated in the ECPI is predictive of whether or not a child would approach in unfamiliar situatuions.

However, the above interpretation has a weak point that the two kinds of classification are different with respect to distance from the 23 months assessment, for inhibition was assessed only 4 months later, while attachment was assessed 11 months before. As a result, we could not exclude the interpretation based on time closeness. In addition, since the above interpretation is a retrospective one, the explanation is not a causal explanation. To make up for this, we examined the relation between the babies' approach/non approach behaviors with their reaction to a stranger at 7.5 months. As presented in table 10, the results are similar to the above. Half of the "fearful children" did not approach at all, while just half of the "notfearful children" made at least two approaches. The difference between "the fearful" and "the not fearful" groups at 7.5 months is significant ($x^2=9.56$, $p.<.05$) with regard to future responses. It is suggested that children's responses in unfamiliar situations at 23 months can be predicted by assessment their response at 7.5 months.

Thus, relationship between children's attachment classification and their behavior in the unfamiliar-object situations approached situation was examined again using subgroups of attachment classification. As shown in table 9, apart from C_2, subgroups divides into either the group with at least 2 approach or the group with at most one approach ($x^2 = 10.39$, $p < .0.1$). That is, toddlers who approached in none of the situations were either C_1 or B_3, whereas those who did in all three of them were either B_1 or B_2 without exception (C_1, B_3 vs. others ; $x^2 = 13.85$, $p \fallingdotseq .001$). Easterbrooks & Lamb (1979) also reported that B_1, B_2

TABLE 9

Cross-Situational and Longitudinal Consistency of Aboidant Behavior Related with Sub-category of Attachment Types and Behavioral Inhibition.

B TYPE

Number of Situations	Subject	12M. ATTA CLSS	23M. ROB AVO	23M. STRG AVO	27M. PEER AVO	27M. ECPI INHB	7.5M. S.S. FEAR
None	2113	B3	*	*	*	*	
	2117	B3	*	*	*	*	*
	2208	B3	*	*	*		*
	2101	B3	*	*	*	*	0
One	2103	B3	*	0	*		0
	2104	B3	*	0	*	*	0
	2105	B3	*	0	*	0	0
	2112	B2	*	0	*	0	0
	2108	B2	0	*	*	*	*
	1104	B4	0	*	*		0
Two	1110	B2	*	0	0	0	0
	2203	B2	*	0	0	0	
	2115	B4	0	*	0		*
	1107	B2	0	*	0	*	0
	1106	B2	0	*	0		*
	1214	B2	0	*	0		
	2109	B1	0	*	0	0	0
	2111	B2	0	*	0		0
All	1113	B3	0	0	*	0	
	2110	B4	0	0	*	0	
	1208	B2	0	0	0	0	0
	2202	B1	0	0	0	0	0
	2201	B1	0	0	0	0	
	1212	B2	0	0	0		0

C TYPE

Number of Situations	Subject	12M. ATTA CLSS	23M. ROB AVO	23M. STRG AVO	23M. PEER AVO	27M. ECPI INHB	7.5M. S.S. FEAR
None	1109	C1	*	*	*	*	*
	2206	C1	*	*	*	*	*
	2211	C1	*	*	*	*	*
	2116	C1	*	*	*	*	
	2207	C2	*	*	*		*
	2212	C2	*	*	*	*	*
	1206	C1	*	*	*		*
One	2214	C2	*	0	*	0	*
	1205	PC	*	*	0	0	
	1207	C1	*	*	0	*	*
	1102	PC	0	*	*	*	*
	1209	PC	0	*	*		0
	1217	C2	0	*	*		
Two	2114	PC	*	0	0	*	*
	1211	C2	*	0	0	0	*
	1213	C2	*	0	0	0	*

NOTE

*: Yes 0: No
ATTA CLSS: Attachment Classfication
AVO: Avoidant INHB: Iinhibited
S.S.: Strange Situation

infants not only engaged in more frequent and more sophisticated interaction with unfamiliar peers and adults but also were more independent from their mother than B_3, B_4 infants at 18 months old. Thus, it is suggested that the Ainsworth's attachment classification system has some limitation When applied to our present data *in detail* though it explains a *general* profile of them. Then, what criteria would be brought from this result as more valid one ? The distinctive features of B_3s and C_1s from others are their high proximity seeking and contact maintaining (Ainsworth, Bleher, Waters & Wall 1977 : Sroufe & Waters 1977). In short, they are diffcult to separate from their mother in a strange situation. This fact suggests that as the Ainsworth's classification system consists of multiple scales, only some of them relate to some of the later competences.

CONCLUSION

The present study demonstrated that Ainsworth's attachment classificaton had some limitations when applied to our present data. Our study also shows that the pattern of attachment classification partially overlaps with that of children's response in the unfamiliar object situation (see TABLE 9). Moreover, our data show that the children's behavior at 23 months is predicted by "the fearfulness" obtained at 7.5 months the same as by attachment types obtained at 12 month.

Of course, it is to be noted that our procedures are not identical with those adopted in studies by, for example, Matas et al. (1978) and Waters et al. (1979). However, it is reasonable to say that remote effects of the attachment type on later competence can not exclude the possibility of the interpretation according to an interaction between temperamental factors and children's sense of effectance.

REFERENCE

Ainsworth, M. D. D., Blehar, M. C., Waters, E. & Wall, S. *Patterns of Attachment.* Hillsdale, N. J.: Lawrence Erlbaum 1978.

Arend, R., Gove, F. L., & Sroufe, L. A. Continuity of individual adaptation from infancy to kindergarten : A predictive study ego-resiliency and curiosity in preschoolers. *Child Development*, 50, 950-959, 1979.

Campos, J. J., Barrett, K., Lamb, M., Goldsmith, H. H., & Sternberg, C. Socioemotional development. In M. M. Haith & J. J. Campos (Eds.), P. H. Mussen (Series Ed.), *Handbook of Child Psychology : Vol. 2. Infancy and Developmental Psychology.* Wiley, 1983.

Easterbrooks, M. A., & Lamb, M. E. The relationship between quality of infant-mother attachment and infant competence in initial encounters with peers. *Child Development*, 50, 380-387, 1979.

Grossman, K., Grossman, K. E., Spangler, G., Suess, G., & Unzner, L. Maternal sensitivity and newborns' orienting reponresponses as related to quality of attachment in Nothern Germany. *Monograhps of the Society for Research in Child Development*, 50, 233-256, 1985.

Lee, C. L. & Bates, J. E. Mother-child interaction at age two years and perceived difficult temperament. *Child Development*, 56, 1314-1325, 1985.

Londerville, S. & Main, M. Security of attachment, compliance, and maternal training methods in the second year of life. *Developmental Psychology*, 17, 289-299, 1981.

Main, M. Exploration, play, and cognitive functioning related to infant-mother attachment. *Infant Behavior and Development*, 6, 169-174, 1983.

Matas, L., Arend, R. A., & Sroufe, L. A. Continuity of adaptation in the second year : The relationship between quality of attachment. *Child Development*, 49, 547-556, 1978.

Miyake, K., Chen, S., & Campos, J. J., Infant temperament, mother's mode of interaction, and attachment in Japan. *Monograhps of the Society for Research in Child Development*, 50, 276-297, 1985.

Nakano, S. Does quality of attachment in a strange situation related to later competence in a different situation ? *Annual Report 1982-83*, Research and Clinical Center for Child Development, Faculty of Education, Hokkaido University, 59-70, 1984.

Sroufe, L. A., & Waters, E. Attachment as an orgaizational construct. *Child Development*, 48, 1184-1199, 1977.

Sroufe, L. A., Fox, N. E., & Pancake, V. R. Attachment and dependency in developmental perspective. *Child Development*, 54, 1615-1627, 1983.

Sroufe, L., A. Attachment classification from the perspective of infant-caregiver relationships and infant temperament. *Child Development.*, 56, 1-14, 1985.

Usui, H. & Miyake, K. Infant temperament : It's relationship with attachment classification and longitudinal data analysis. *Annual Report 1983-84*, Research and Clinical Center for Child Development, Faculty of Education, Hokkaido University, 6, 37-48.

Waters, E., Wippman, J., & Sroufe, L. A. Attachment, positive affect, and commpetence in the peer group : Two studies in construct validation. *Child Development*, 50, 821-829, 1979.

BEST COPY AVAILABLE